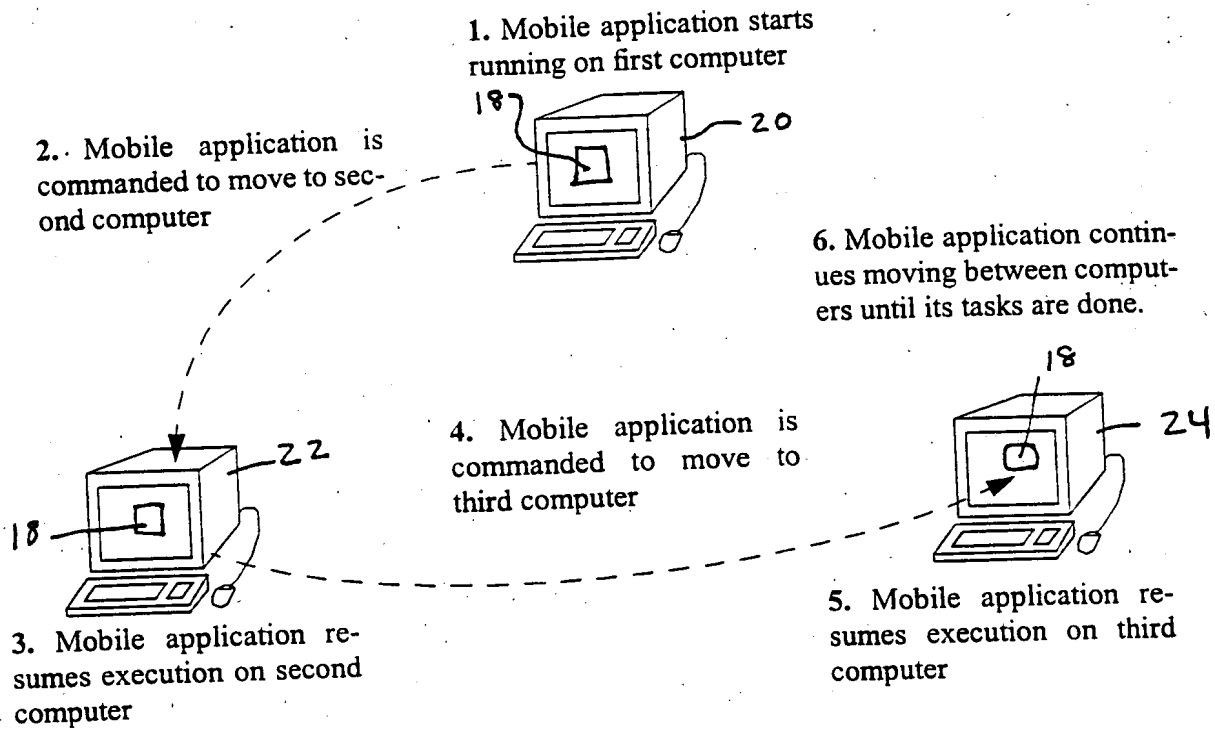
1. Mobile application starts running on first computer
18
20
2. Mobile application is commanded to move to second computer
6. Mobile application continues moving between computers until its tasks are done.
18
24
4. Mobile application is commanded to move to third computer
22
18
3. Mobile application resumes execution on second computer
5. Mobile application resumes execution on third computer

Figure 1

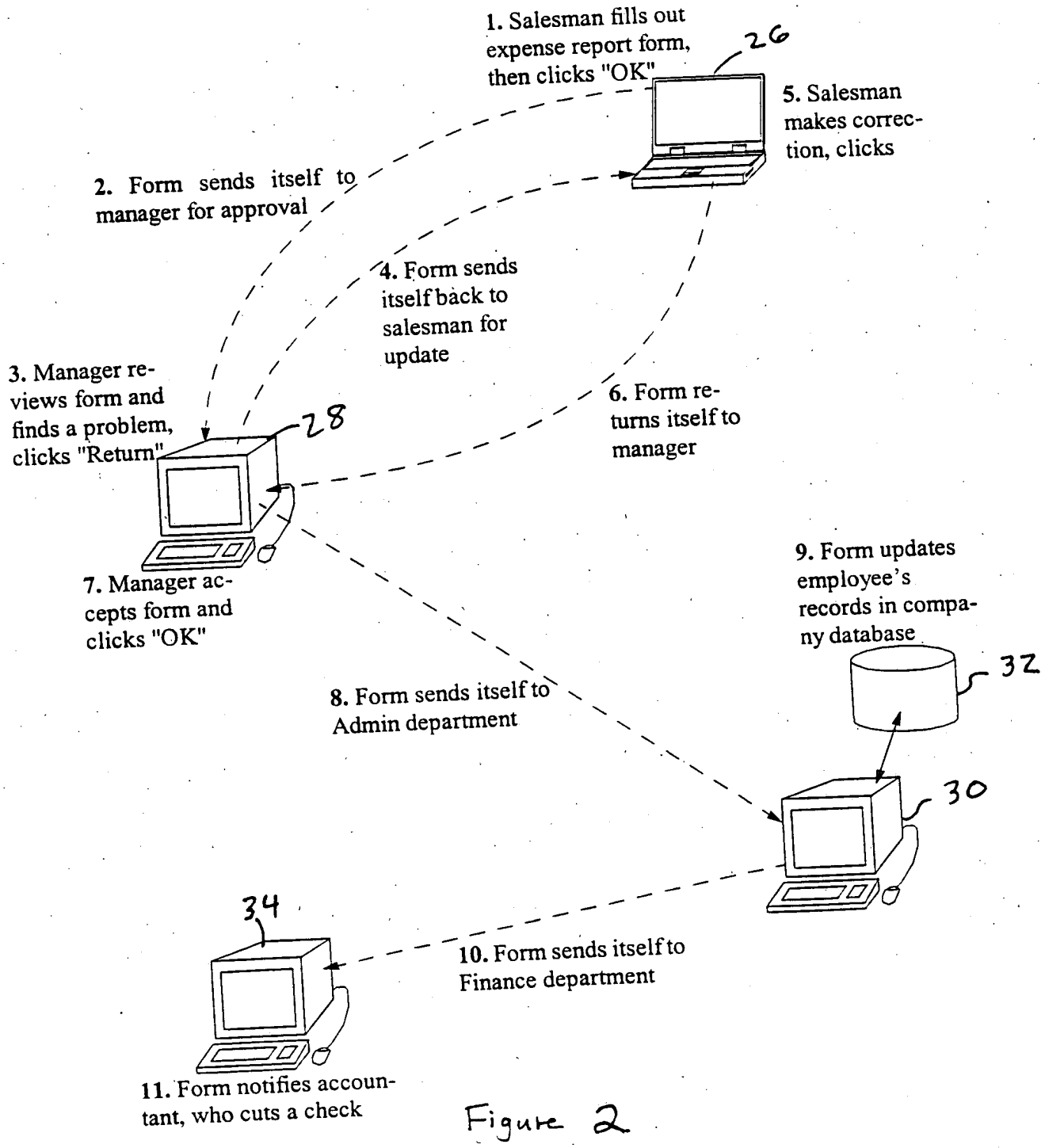
1. Salesman fills out expense report form, then clicks "OK"
26
5. Salesman makes correction, clicks
2. Form sends itself to manager for approval
4. Form sends itself back to salesman for update
3. Manager reviews form and finds a problem, clicks "Return"
28
6. Form returns itself to manager
7. Manager accepts form and clicks "OK"
9. Form updates employee's records in company database
32
8. Form sends itself to Admin department
30
34
10. Form sends itself to Finance department
11. Form notifies accountant, who cuts a check

Figure 2

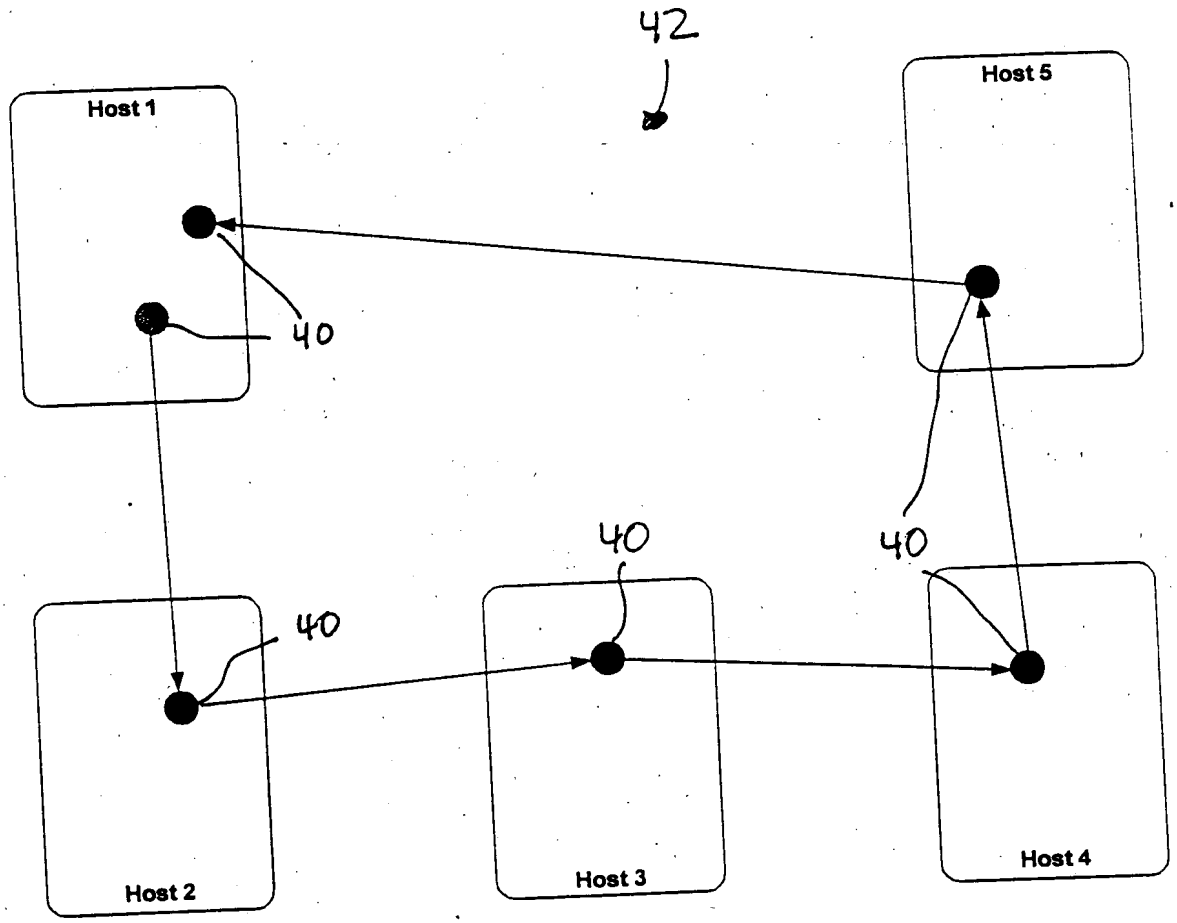

Figure 3

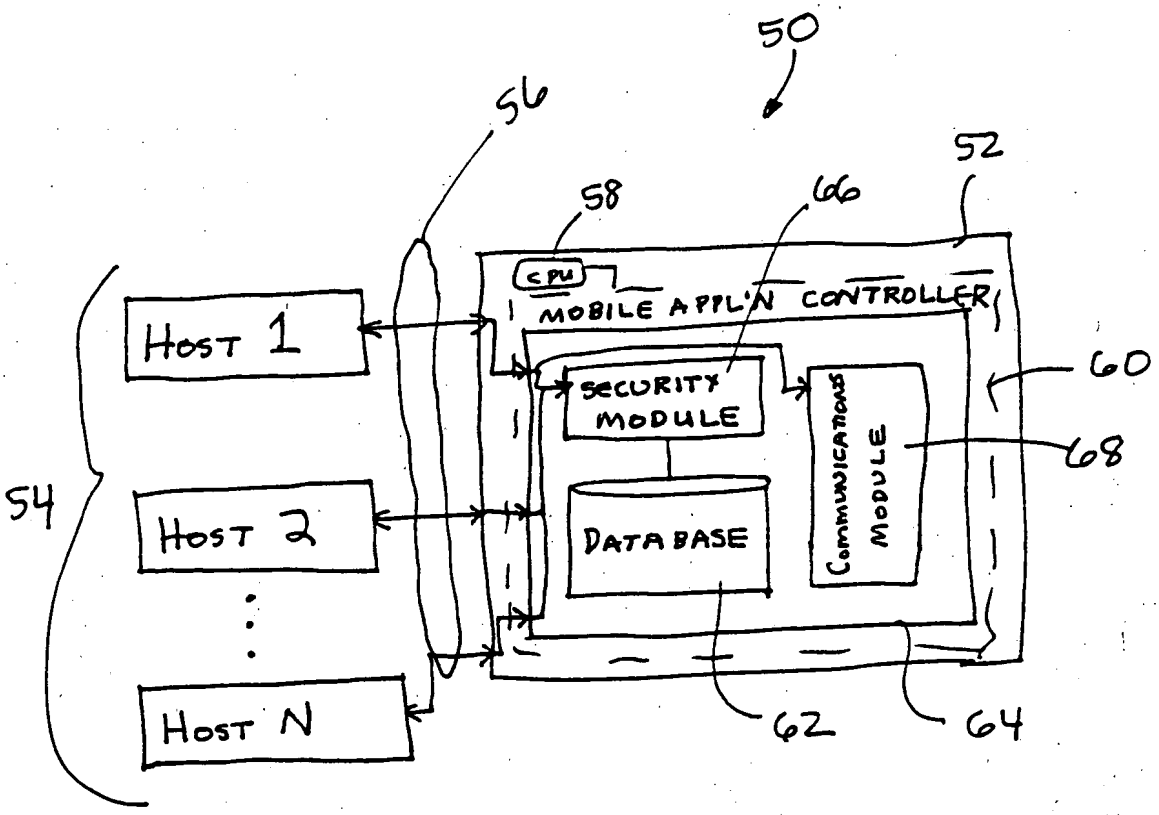
50
56
52
58
66
CPU
MOBILE APPL'N CONTROLLER
HOST 1
SECURITY MODULE
60
54
HOST 2
DATA BASE
COMMUNICATIONS MODULE
68
HOST N
62
64

FIGURE 4

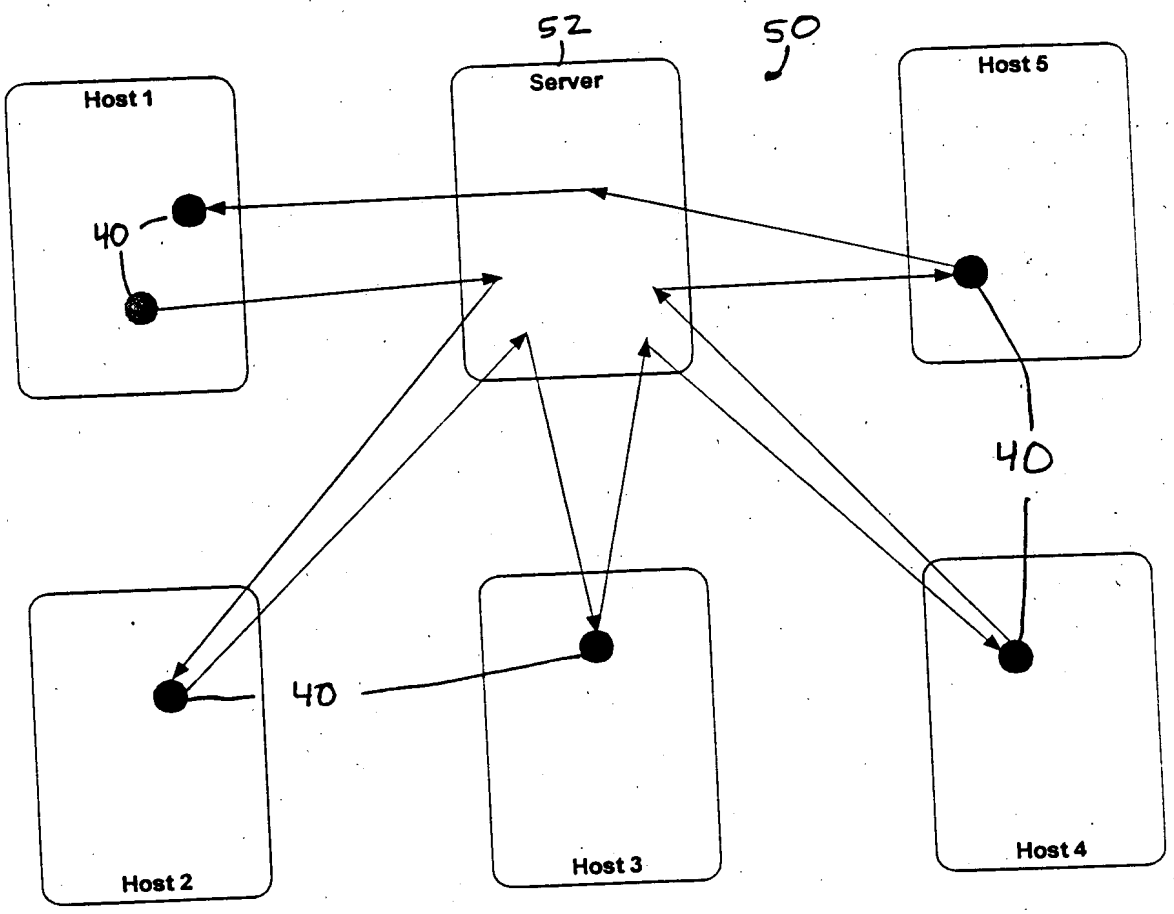

Figure 5

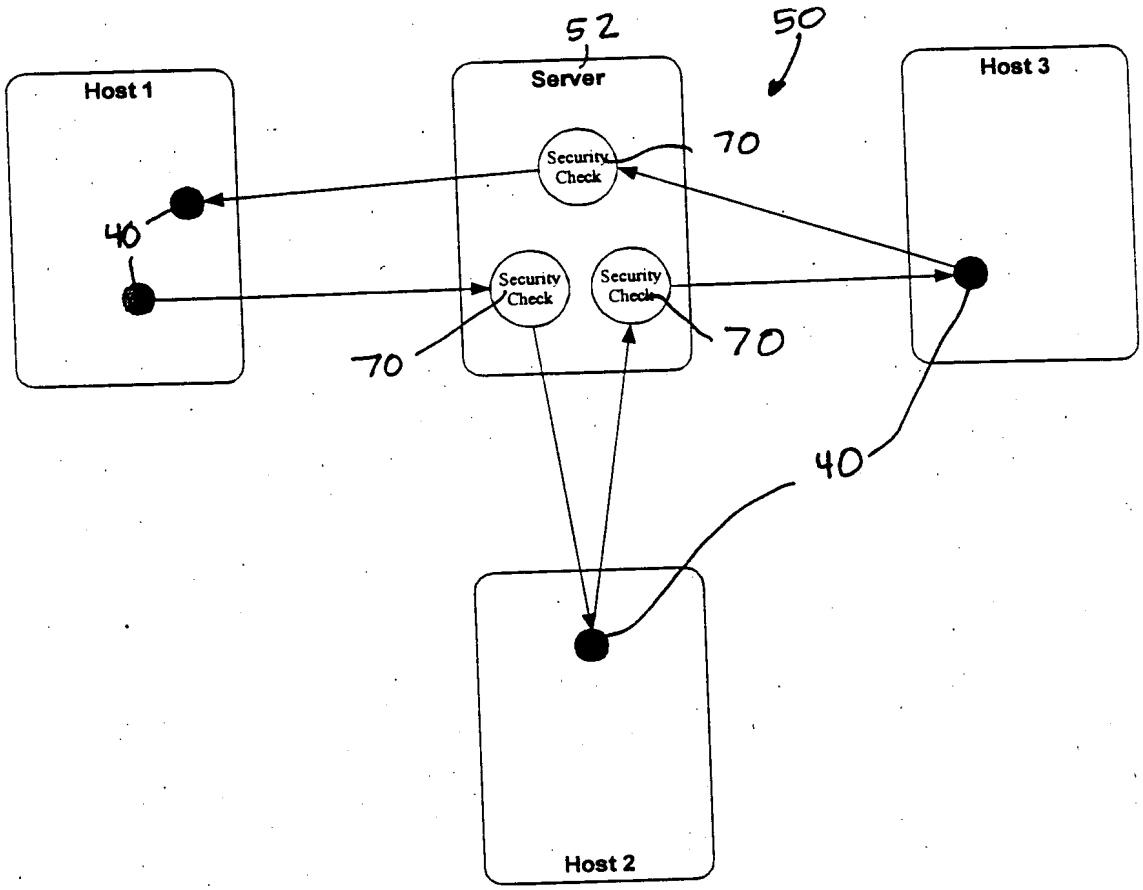
52
50
Server
Host 1
Host 3
Host 2
Security Check
Security Check
Security Check
70
70
70
40
40

Figure 6

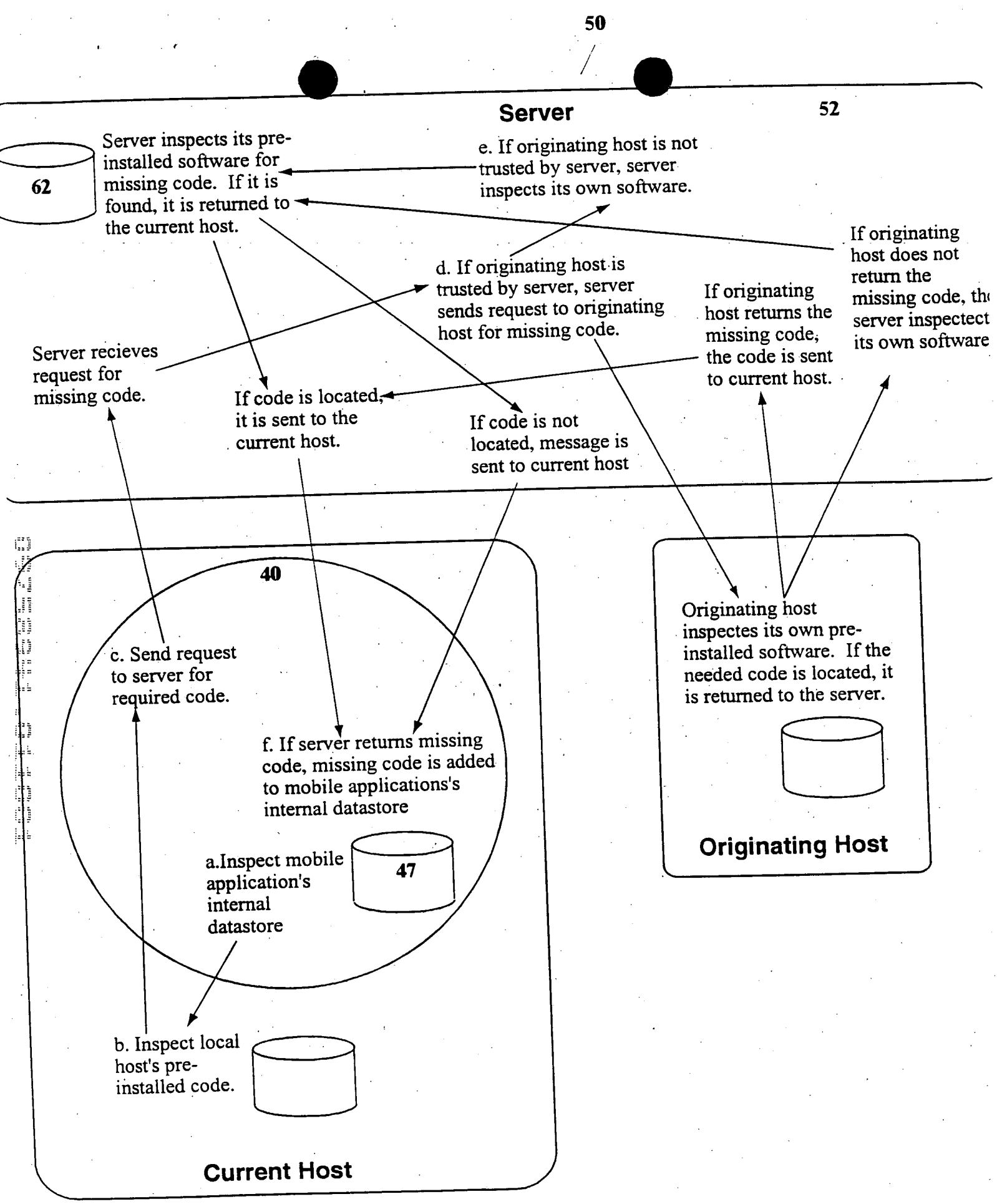
50
Server
52
62
Server inspects its pre-installed software for missing code. If it is found, it is returned to the current host.
e. If originating host is not trusted by server, server inspects its own software.
If originating host does not return the missing code, the server inspectect its own software
d. If originating host is trusted by server, server sends request to originating host for missing code.
If originating host returns the missing code, the code is sent to current host.
Server recieves request for missing code.
If code is located, it is sent to the current host.
If code is not located, message is sent to current host
40
c. Send request to server for required code.
f. If server returns missing code, missing code is added to mobile applications's internal datastore
a.Inspect mobile application's internal datastore
47
b. Inspect local host's pre-installed code.
Current Host
Originating host inspectes its own pre-installed software. If the needed code is located, it is returned to the server.
Originating Host

Figure 7

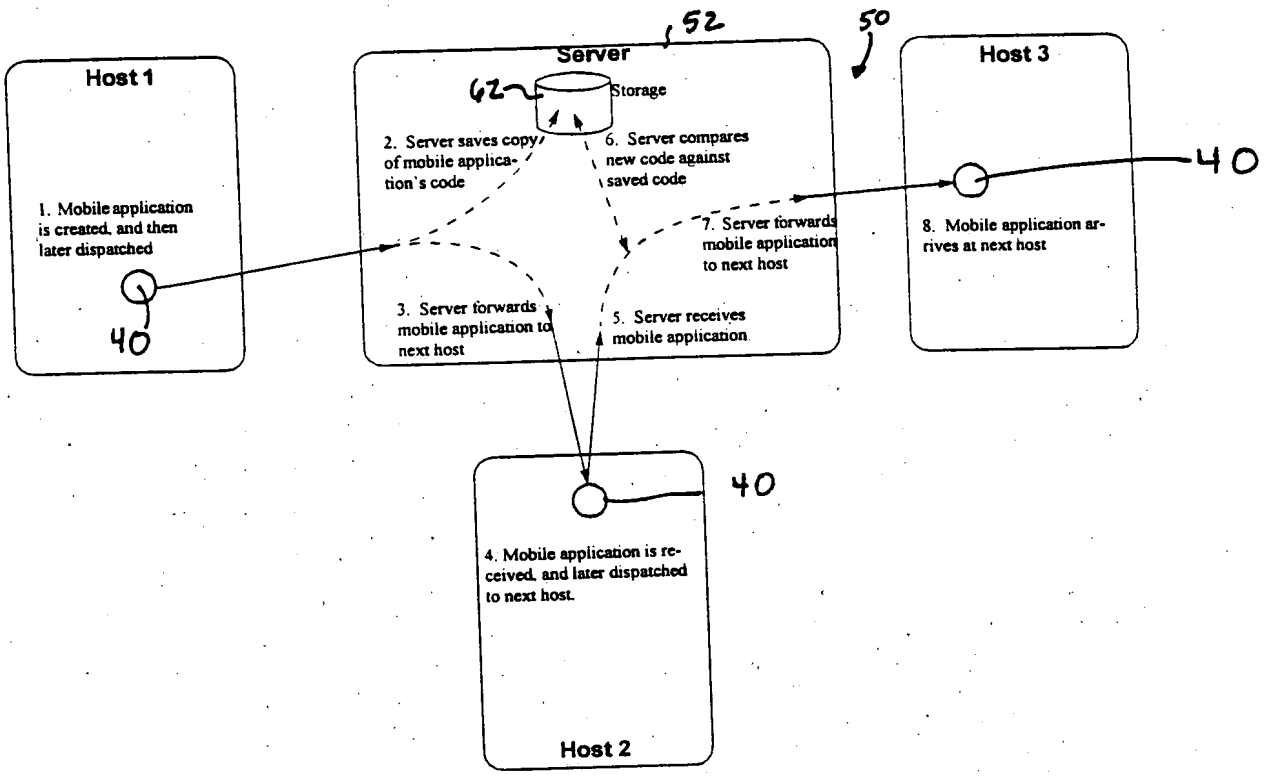
Host 1
1. Mobile application is created, and then later dispatched
40
Server
52
50
62
Storage
2. Server saves copy of mobile application's code
6. Server compares new code against saved code
3. Server forwards mobile application to next host
5. Server receives mobile application
7. Server forwards mobile application to next host
Host 3
8. Mobile application arrives at next host
40
40
4. Mobile application is received, and later dispatched to next host.
Host 2

Figure 7a

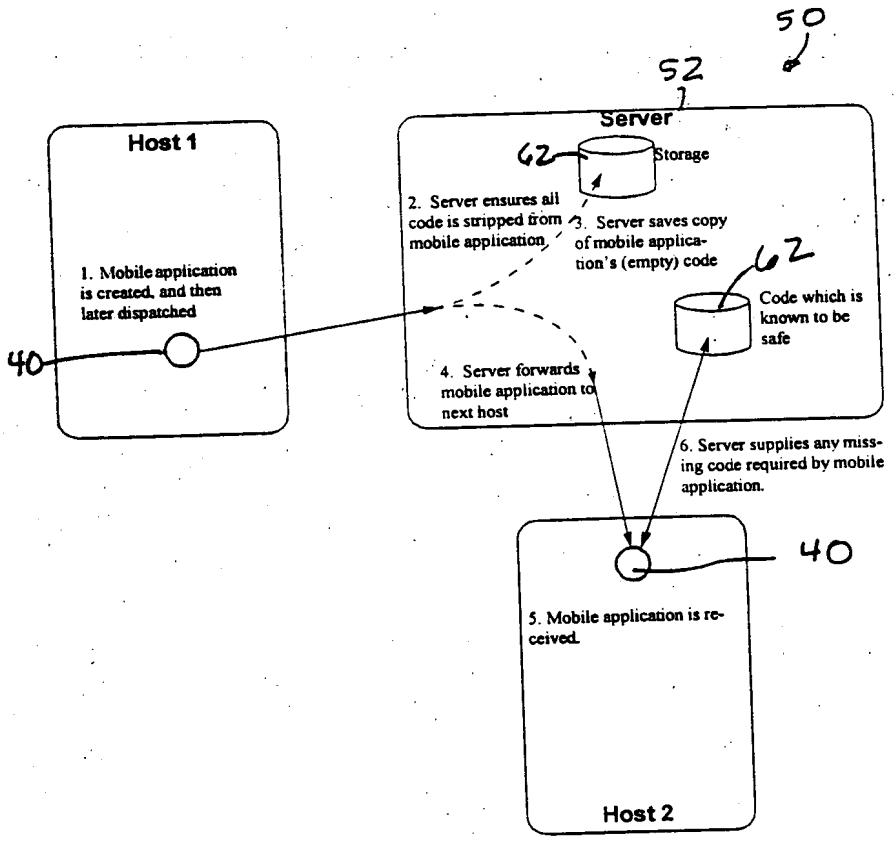
50
52
Server
Host 1
62
Storage
2. Server ensures all code is stripped from mobile application
3. Server saves copy of mobile application's (empty) code
62
Code which is known to be safe
1. Mobile application is created, and then later dispatched
40
4. Server forwards mobile application to next host
6. Server supplies any missing code required by mobile application.
40
5. Mobile application is received.
Host 2

Figure 8

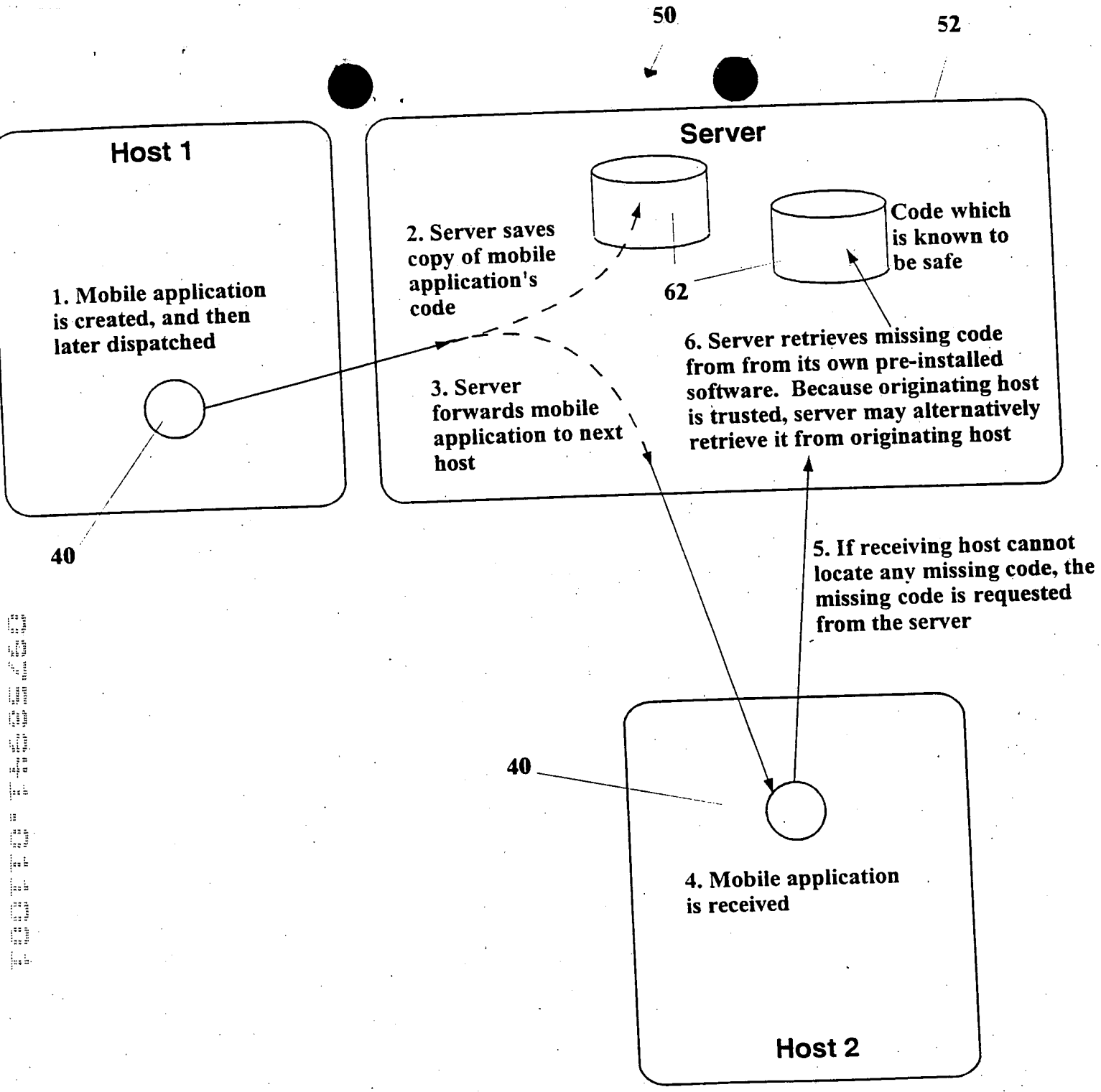
50
52
Host 1
Server
1. Mobile application is created, and then later dispatched
2. Server saves copy of mobile application's code
Code which is known to be safe
62
3. Server forwards mobile application to next host
6. Server retrieves missing code from from its own pre-installed software. Because originating host is trusted, server may alternatively retrieve it from originating host
40
5. If receiving host cannot locate any missing code, the missing code is requested from the server
40
4. Mobile application is received
Host 2

Figure 9

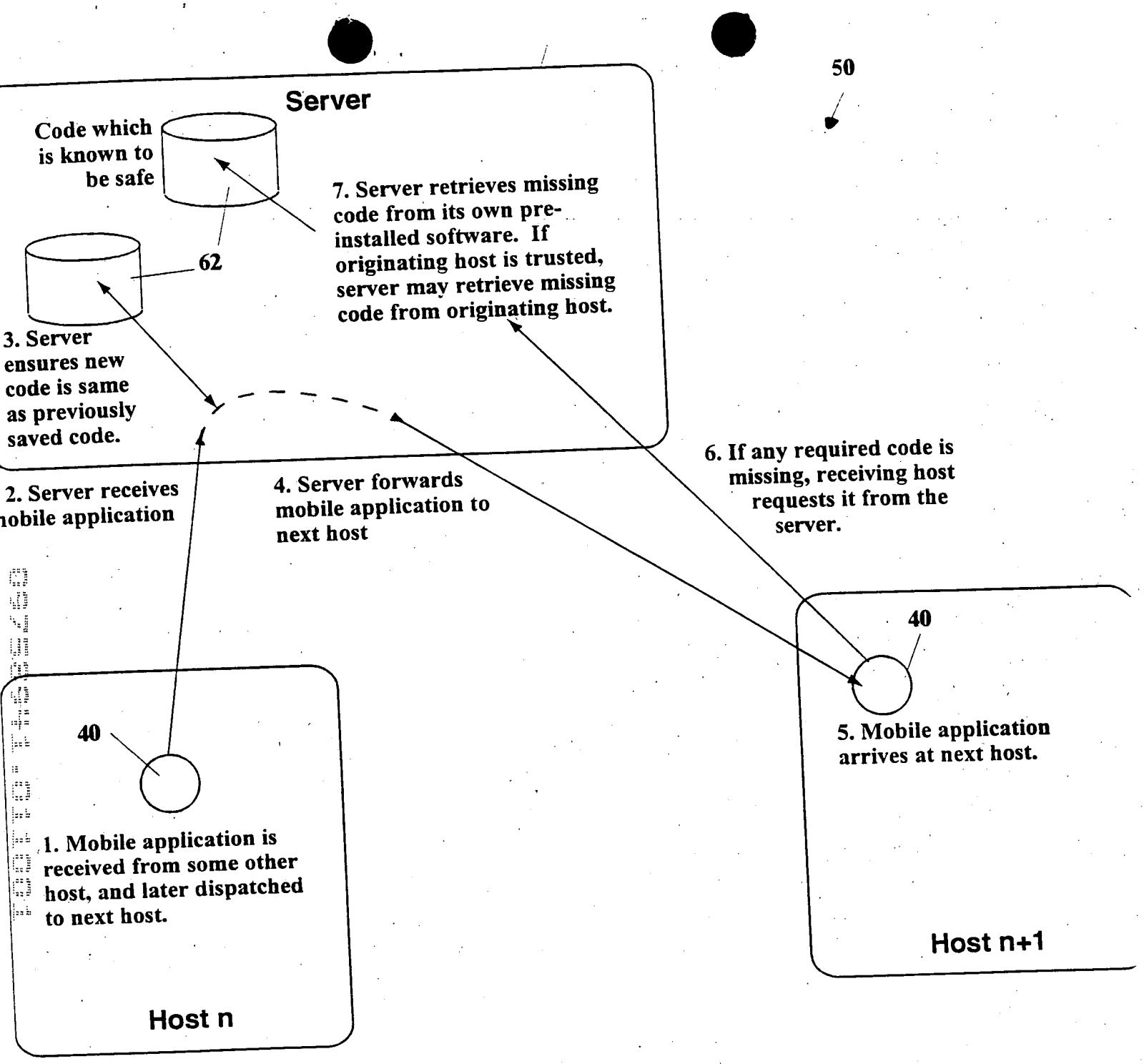
50
Server
Code which is known to be safe
62
7. Server retrieves missing code from its own pre-installed software. If originating host is trusted, server may retrieve missing code from originating host.
3. Server ensures new code is same as previously saved code.
2. Server receives mobile application
4. Server forwards mobile application to next host
6. If any required code is missing, receiving host requests it from the server.
40
5. Mobile application arrives at next host.
Host n+1
40
1. Mobile application is received from some other host, and later dispatched to next host.
Host n

Figure 10

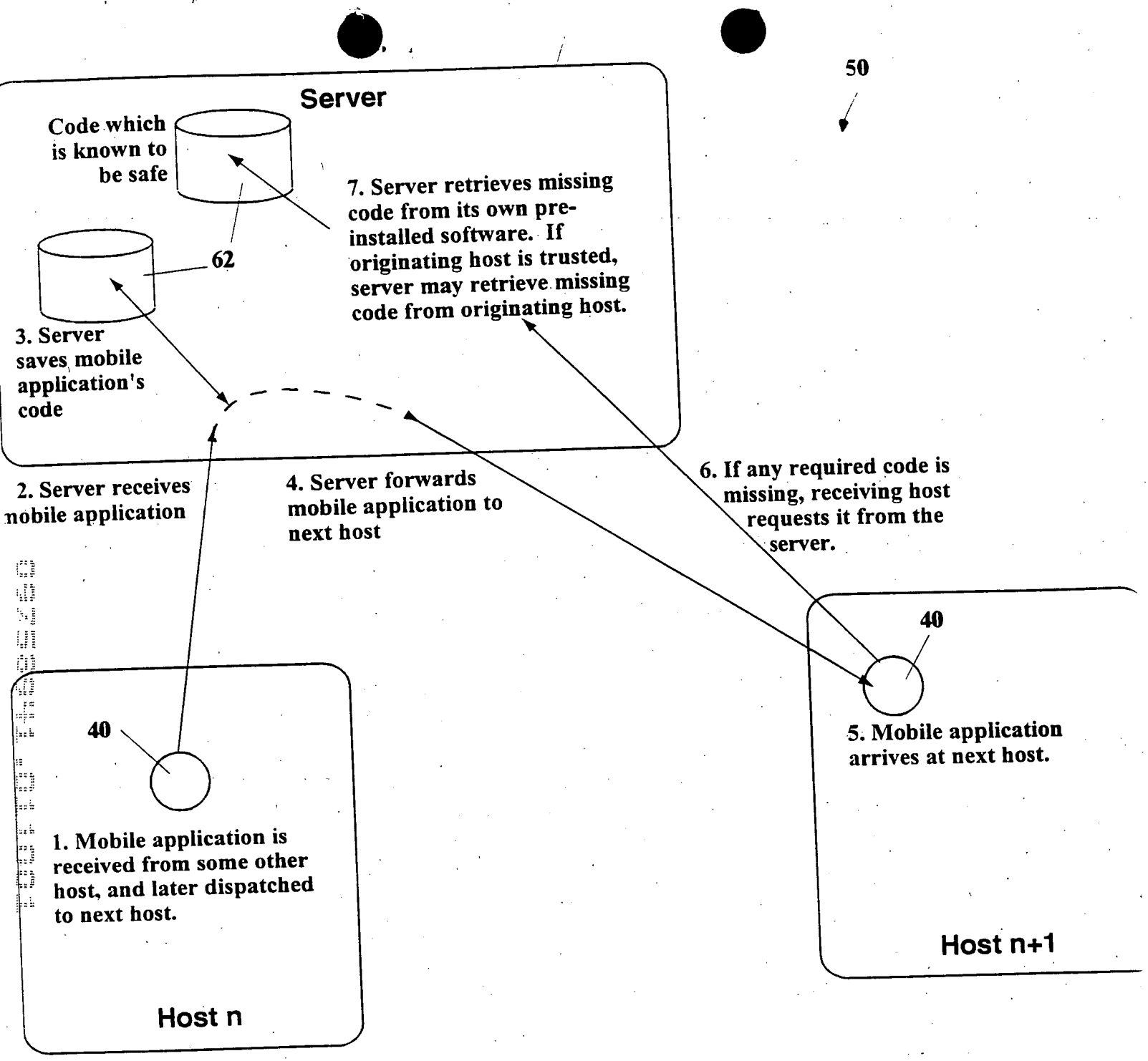
50
Server
Code which is known to be safe
62
7. Server retrieves missing code from its own pre-installed software. If originating host is trusted, server may retrieve missing code from originating host.
3. Server saves mobile application's code
2. Server receives mobile application
4. Server forwards mobile application to next host
6. If any required code is missing, receiving host requests it from the server.
40
5. Mobile application arrives at next host.
Host n+1
40
1. Mobile application is received from some other host, and later dispatched to next host.
Host n

Figure 11

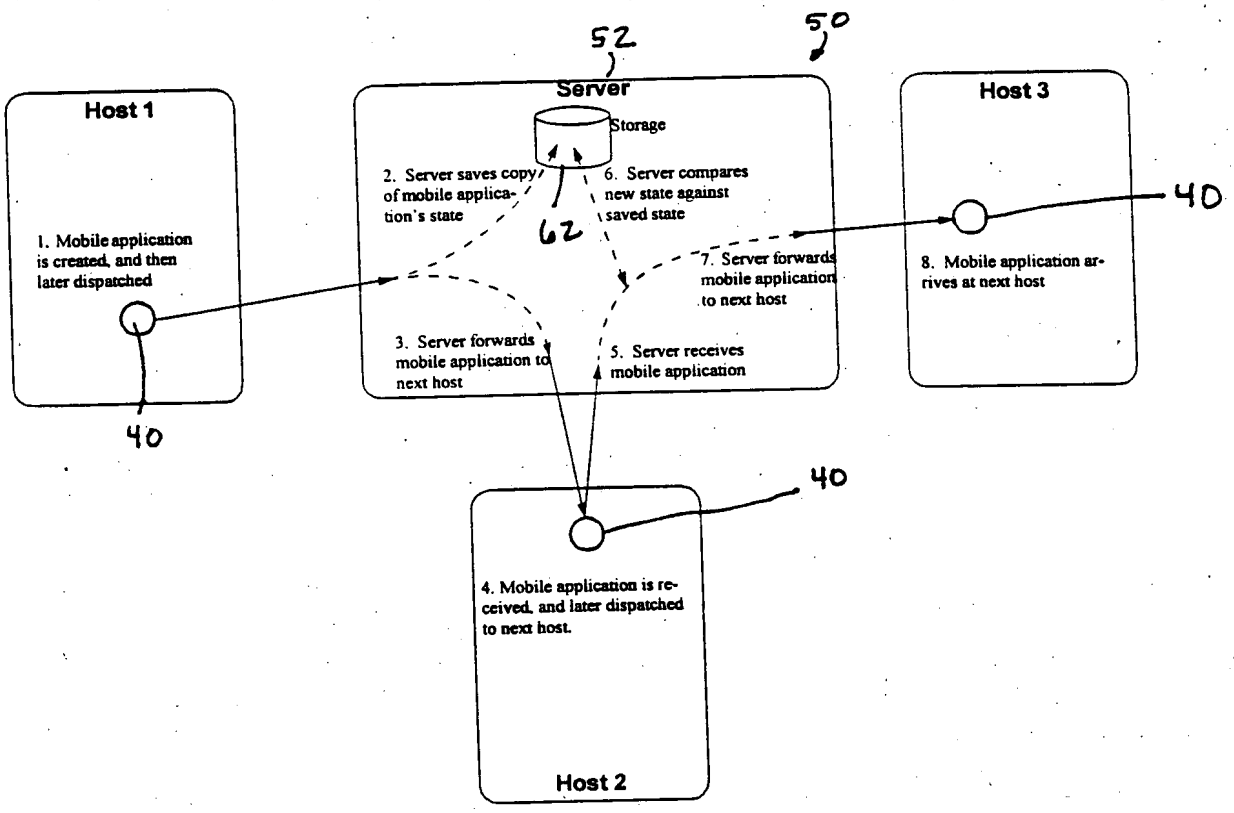
52
50
Server
Storage
Host 1
Host 3
2. Server saves copy of mobile application's state
6. Server compares new state against saved state
62
40
1. Mobile application is created, and then later dispatched
7. Server forwards mobile application to next host
8. Mobile application arrives at next host
3. Server forwards mobile application to next host
5. Server receives mobile application
40
4. Mobile application is received, and later dispatched to next host.
Host 2

Figure 12

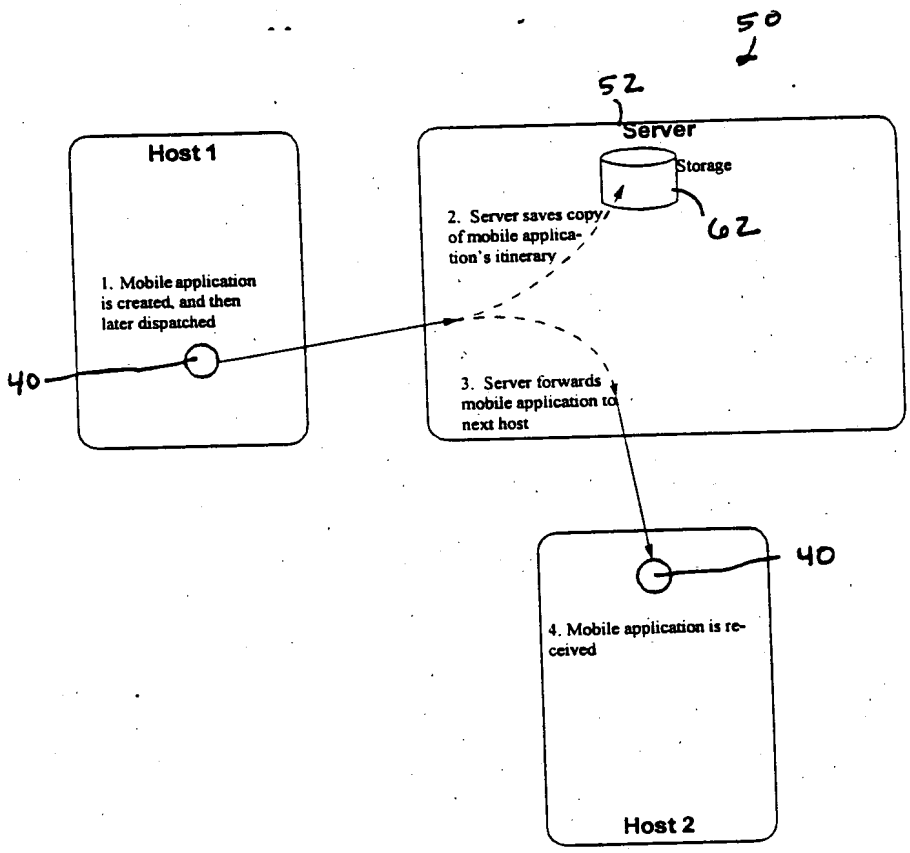
50
52
Server
Host 1
Storage
62
2. Server saves copy of mobile application's itinerary
1. Mobile application is created, and then later dispatched
40
3. Server forwards mobile application to next host
40
4. Mobile application is received
Host 2

Figure 13

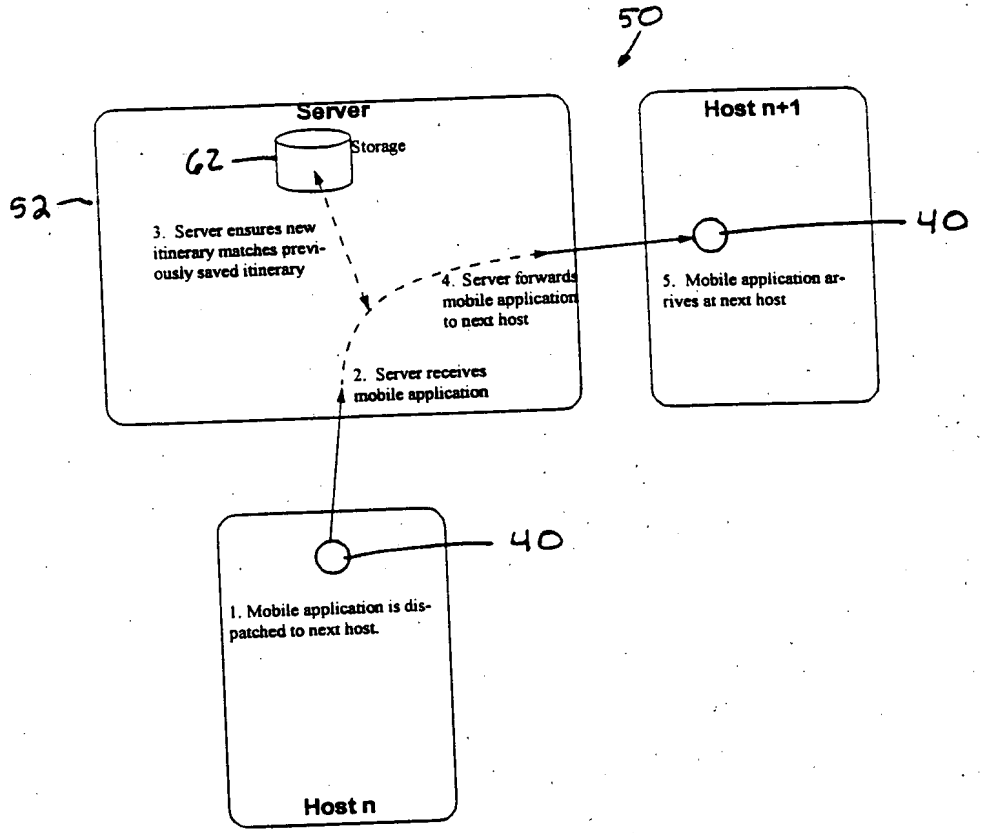
50
Server
62
Storage
52
3. Server ensures new itinerary matches previously saved itinerary
4. Server forwards mobile application to next host
2. Server receives mobile application
Host n+1
40
5. Mobile application arrives at next host
40
1. Mobile application is dispatched to next host.
Host n

Figure 14

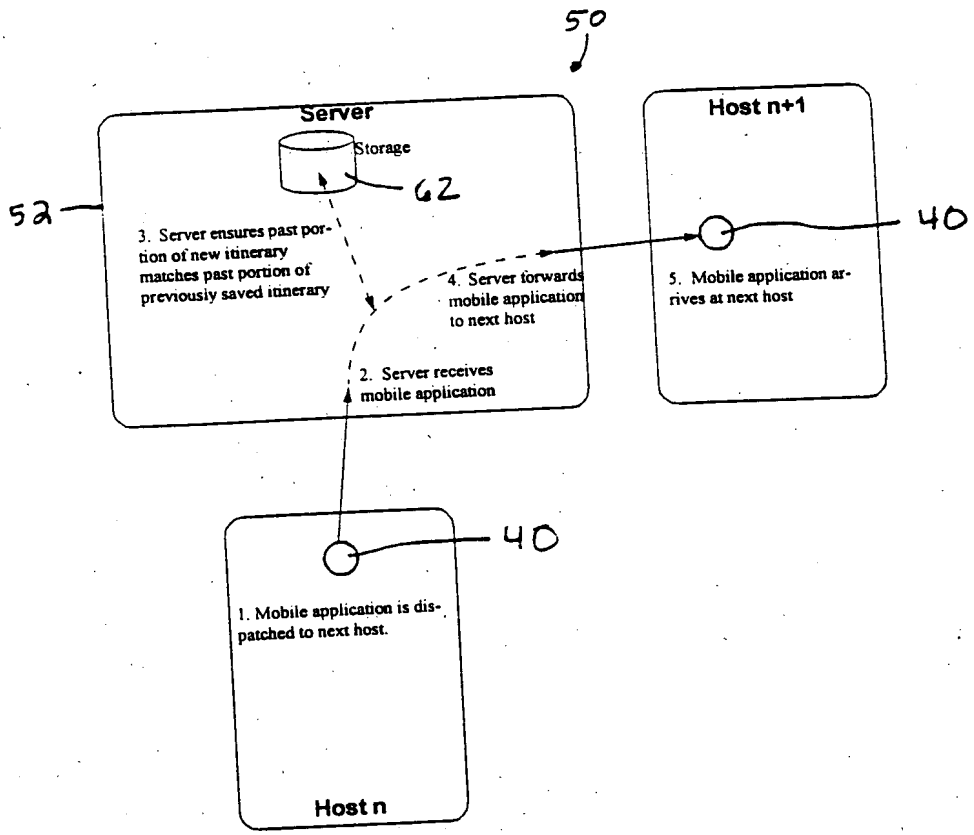
50
Server
Storage
62
52
Host n+1
40
3. Server ensures past portion of new itinerary matches past portion of previously saved itinerary
4. Server forwards mobile application to next host
5. Mobile application arrives at next host
2. Server receives mobile application
40
1. Mobile application is dispatched to next host.
Host n

Figure 15

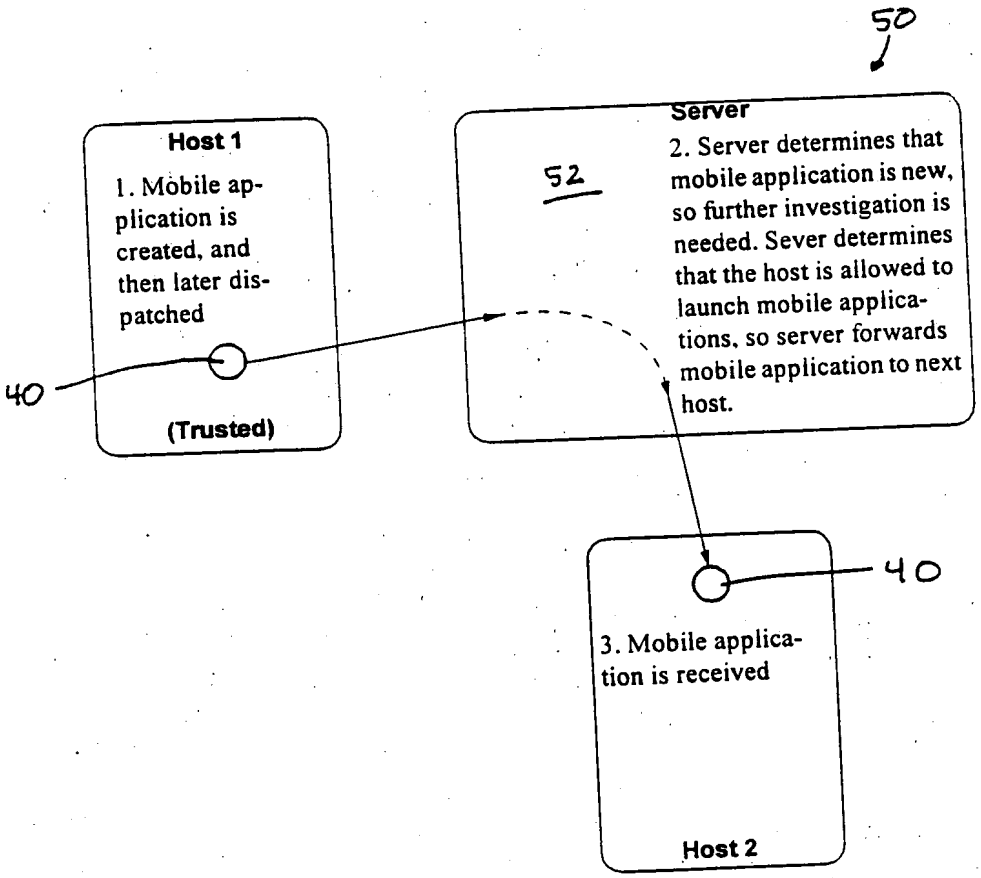
50
Host 1
1. Mobile application is created, and then later dispatched
(Trusted)
40
52
Server
2. Server determines that mobile application is new, so further investigation is needed. Sever determines that the host is allowed to launch mobile applications, so server forwards mobile application to next host.
40
3. Mobile application is received
Host 2

Figure 16

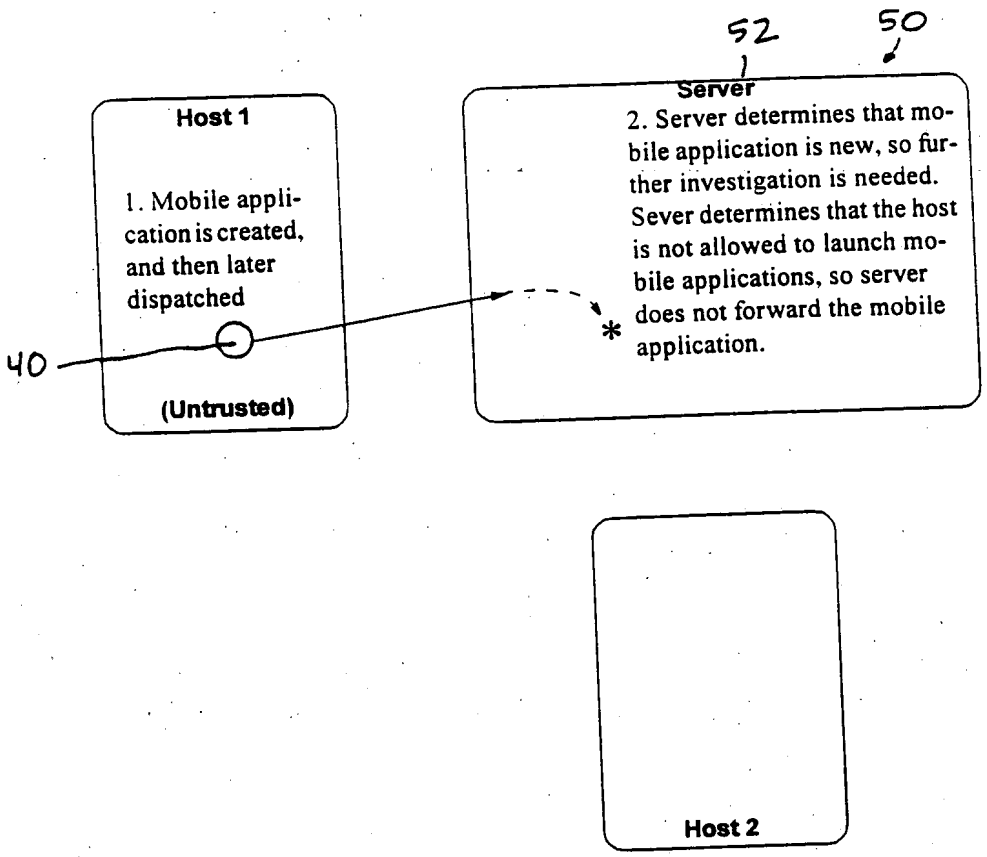
52
50
Server
Host 1
1. Mobile application is created, and then later dispatched
40
(Untrusted)
2. Server determines that mobile application is new, so further investigation is needed. Sever determines that the host is not allowed to launch mobile applications, so server does not forward the mobile application.
*
Host 2

Figure 17

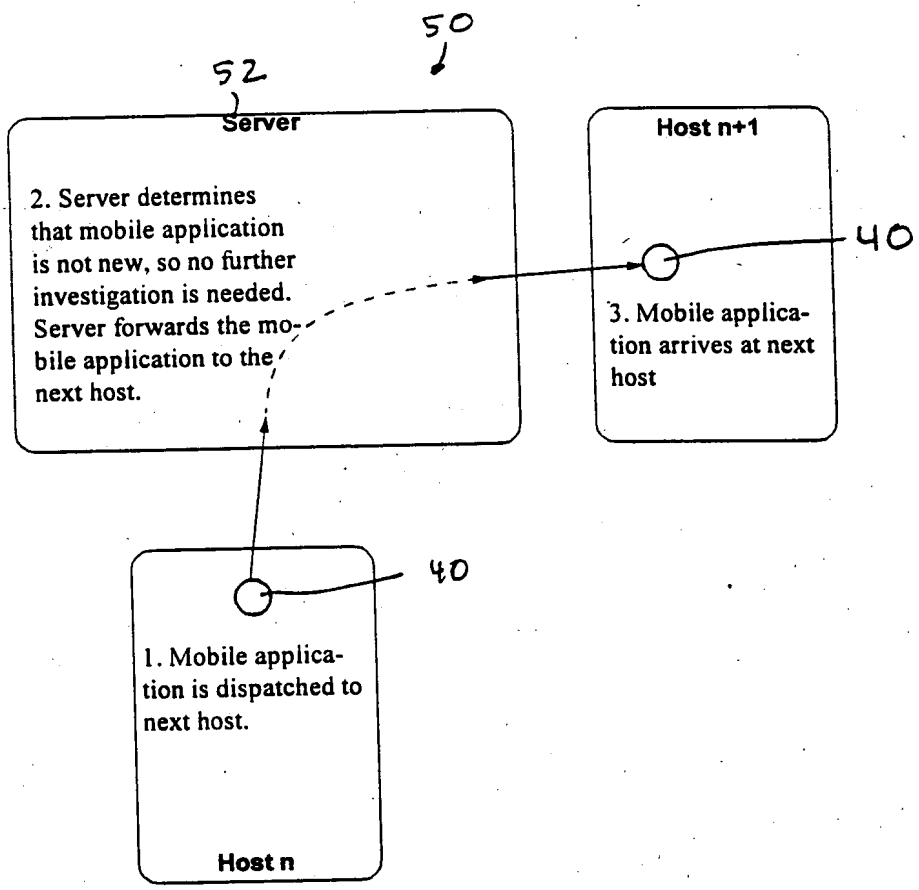
50
52
Server
2. Server determines that mobile application is not new, so no further investigation is needed. Server forwards the mobile application to the next host.
Host n+1
40
3. Mobile application arrives at next host
40
1. Mobile application is dispatched to next host.
Host n

Figure 18